The Influence of Fraud Diamond Perspective and Artificial Intelligence Factors on Academic Dishonesty Indonesian College Student

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Abstract

This research aims to determine the influence of pressure, opportunity, rationalization, and ability in the Theory of Fraud Diamond, and the results of pressure, opportunity, rationalization, ability with moderation artificial intelligence on college student academic dishonesty. The data analysis technique for this research uses descriptive statistical analysis, multiple linear regression analysis, moderated regression analysis. The results of this research showed that; (1) Pressure, opportunity, rationalization, and ability has a significant positive effect on students' college student academic dishonesty (2) Artificial intelligence can strengthen the influence of Pressure, Opportunity, and Ability on students' college academic dishonesty. Meanwhile, the interaction variable between artificial intelligence and rationalization has no effect on students' college academic dishonesty.

Keywords: *Academic Dishonesty; Fraud Diamond; Pressure; Opportunity; Rationalization; Ability; Artificial Intelligence*

Introduction

Higher education is an educational institution that is closely related to the teaching and learning process. Students have many demands in pursuing their academic education, these demands come from parents, universities and also from themselves. Thought in society has encouraged that smart people are people who have high academic scores. Parents really hope that their children get good grades, apart from that, universities also want to produce the best graduates. Therefore, efforts arise to obtain unfair profits by various actions that ignore existing regulations. Higher education aims to complete assignments and exams in lectures, but many students commit cheating which is then called academic dishonesty.

According to Artani, (2018), academic cheating is dishonest behavior with the aim of getting high academic grades. In connection with Fraud Diamond Theory, Wolfe & Hermanson (2004) found that there are elements that encourage someone to commit fraud. According to Fraud Diamond Theory, the factors that cause humans to commit fraud are pressure, opportunity, rationalization and capability. There are several types of academic cheating namely falsifying author data or bibliography, plagiarism, duplicating assignments, quoting information without citing sources, cheating on exams and collaboration that does not comply with the rules Cardina and KB Sangka, (2021). Academic cheating is very common

among pupils and students at various levels of education Nursani and Irianto, (2013). Bowers (1964) in McCabe et al., (2001) has conducted previous research on large-scale academic cheating in universities. The research had respondents from 99 universities totaling 5000 students in the United States. As a result of this research, 75 percent of student respondents admitted to having committed academic fraud more than once during college.

The increasingly rapid development of information technology also contributes to students' academic cheating practices. Szabo and Underwood, (2004) stated that in the current world of education, information technology is very important, so students prefer to use it. Artificial intelligence is one of the latest advances in information technology. A professor from the Massachusetts Institute of Technology named John McCarthy first introduced artificial intelligence, or AI, at the Dartmouth conference in 1956. The conference also determined that the main goal of artificial intelligence is knowledge about machine processes to be able to imitate human activities so that it can make things easier for humans Russell and Norvig, (2016). Artificial Intelligence has been developed and used in education for more than 50 years, but little information has been obtained regarding the impact of artificial intelligence technology in teaching and learning in higher education Durso and Arruda, (2022). Previous research on the application of Artificial Intelligence in the field of education states that it is used in 4 fields, namely; Prediction and profiling, Adaptive and personalization systems, Intelligent guidance systems, Assessment and evaluation Zawacki-Richter et al., (2019).

Artificial Intelligence in its development in the field of education apparently not only has a positive impact, but Artificial Intelligence can have a negative impact on the world of education. Quoted from NBC News, the New York City Department of Education announced a ban on the ChatGPT chatbot due to concerns about violating academic integrity. ChatGPT is said to have inspired many people to cheat via a network of devices. The latest academic integrity policy of the University of Sydney in Australia specifically states that "Producing work using Artificial Intelligence" as a form of cheating, then the Australian National University has changed the assessment design to rely on laboratory activities and fieldwork, will stagger exam times and introduce more oral presentations Caitlin Cassidy, (2023). Delft University of Technology conducted trials and comparisons of the use of ChatGPT-4 and pure student work. As a result, students answered questions correctly on average at 63% and ChatGPT-4 was superior in answering questions correctly on average 76%. This makes Delft University of Technology concerned that the development of ChatGPT-4 could endanger academic integrity De Winter, (2023).

Literature Review

An individual will always have a reason for carrying out this activity, it is very likely that the reason is caused by various factors that influence a person, not only factors that come from within oneself but can also be factors that come through the influence of other people or the surrounding environment. It was stated that there is a theory that studies the factors that cause someone to commit academic fraud, this theory is called the Fraud Diamond Theory. Fraud Diamond Theory is a fraud theory introduced by Wolfe and Hermason in 2004, as a refinement of Fraud Triangle Theory. By considering four elements: pressure, opportunity, rationalization and ability, this theory is used to study the reasons why someone commits fraud. The addition of this fourth element is an important point in preventing and detecting fraud. Therefore, this theory is known as Fraud Diamond.

Figure 2.1 Fraud Diamond

Pressure: According to Albrecht et al., (2006), pressure is a situation when someone is forced to commit academic fraud. Pressure can come from various sources, such as academic standards, parents, or those closest to you. The more pressure someone receives, the stronger their urge to commit academic fraud. Therefore, pressure is a condition where educators or students feel pressured or pressured to complete a job or assignment.

Opportunity: Opportunity is a situation when it is possible for an individual to commit fraudulent acts. According to McCabe et al., (2001), opportunities feel that there are benefits that can be obtained from other sources. Meanwhile, according to Albrecht et al., (2006), opportunity is a condition where people perceive situations and conditions that make it possible to cheat, whether detected or not detected. Therefore, opportunity can be a circumstance that favors a person in cheating if there is an opportunity available.

Rationalization: According to Albrecht, (2012) rationalization is behavior that is used to provide justification for actions that previously seemed illogical or did not have a clear reason for doing them. By rationalizing, a person tries to provide social reasons or justifications that can justify his actions, even though in reality these reasons may be based on personal motives or desires.

Ability: Ability in the Fraud Diamond context is an individual's ability to commit fraudulent acts, but not cognitive ability. According to Wolfe and Hermanson, (2004), a person's abilities have an impact on academic cheating behavior, because without the ability and opportunity to do so, academic cheating cannot occur.

Academic dishonesty: According to Gehring and Pavela, (1994), academic cheating is defined as the use of incorrect materials and information or deliberate cheating in academic work. They also state that academic cheating involves cheating, fabrication, facilitating academic cheating, and plagiarism. Academic cheating is often done to get better grades or to make the process of doing academic work easier. However, these actions can harm others and damage the integrity of education.

Artificial intelligence: Rich and Knight, (1991) define artificial intelligence as a study that focuses on how to make computers or systems perform certain tasks better than humans. In this context, AI aims to develop technology that can process information automatically and provide more efficient and accurate solutions. According to Zawacki-Richter et al., (2019) AI has a positive influence, namely as profiling and prediction, intelligent guidance system, assessment and evaluation, adaptive and personalization systems. According to Alshater, (2023) The use of AI in education and research can have several negative implications as follows: dependence on data quality, limited domain knowledge, ethical considerations, potential for abuse, dependence on technology, AI is still limited.

Empirical Studies

This section aims to combine several references from previous research;

According to Munirah and Nurkhin, (2018) with the title "The influence of fraud diamond and gone theory factors on academic fraud". The conclusion in this research is that pressure, opportunity, rationalization, ability, greed, need and disclosure have a positive and significant effect on academic cheating.

According to Warni and Margunani, (2022) with the title "The influence of dimensions in fraud diamonds and misuse of information technology on academic cheating behavior". The results of the research show that pressure, opportunity, rationalization and misuse of information technology have a positive and significant effect on academic fraud. The ability to cheat has no effect on academic cheating behavior.

According to Al Serhan et al., (2022) with the title "Academic dishonesty and the fraud diamond: a study on attitudes of uae undergraduate business students during the covid-19 pandemic" The results of the research show that pressure, opportunity, rationalization and ability have a positive and significant effect on academic fraud.

According to Vilakristiyanti, (2019) with the title "The influence of fraud diamonds on students' academic cheating behavior through self-control as a moderating variable". The results of the research show that pressure, rationalization, ability and self control have a positive and significant effect on academic fraud. The opportunity to cheat has no effect on academic cheating behavior.

Conceptual Framework

Figure 4.1: Conceptual Framework
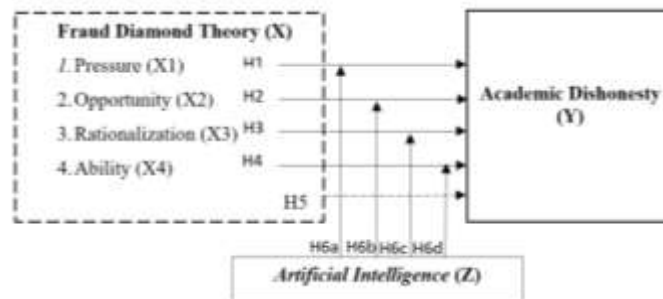
A hypothesis is a temporary answer that will be tested for its truth by looking at the results of the following research analysis;

1. H_1: There is an influence of pressure on students' academic dishonesty behavior
2. H_2: There is an influence of opportunity on students' academic dishonesty behavior
3. H_3: There is an influence of rationalization on students' academic dishonesty behavior
4. H_4: There is an influence of ability on students' academic dishonesty behavior
5. H_5: There is a simultaneous influence of pressure, opportunity, rationalization and ability on students' academic dishonesty behavior
6. H6a: AI strengthens the influence of pressure on students' academic dishonesty behavior
7. H6b: AI strengthens the influence of opportunity on students' academic dishonesty behavior
8. H6c: AI strengthens the influence of rationalization on students' academic dishonesty behavior
9. H6d: AI strengthens the influence of ability on students' academic dishonesty behaviour

Research and Methodology

This research uses quantitative research with a descriptive approach. This research involved 8265 active students from one of the universities in Indonesia at Faculty of Teacher Training and Education from the classes of 2019, 2020, 2021 and 2022. In this research, the sampling technique uses probability sampling and the Slovin formula, which is useful for determining a representative sample size. Researchers can obtain the right sample size to achieve accurate research results based on the following Slovin formula:

$$n = \frac{N}{1 + N\,(e^2)}$$

Based on the Slovin formula, the sample results obtained are:

$$n = \frac{N}{1 + N\,(e^2)}$$

$$= \frac{8265}{1 + 8265 x 0,05^2}$$

$$= \frac{8265}{1 + 20,66}$$

$$= \frac{8265}{21,66}$$

$$n = 381,57$$

Based on calculations using the Slovin formula above, 381.57 was obtained, then rounded to 382, so that the sample for this study was 382, but for the actual sample there were 461.

Each variable is measured using a Likert scale of 1 to 4 with the following meanings: (1) Strongly Disagree (STS), (2) Disagree (TS), (3) Agree (S), (4) Strongly Agree (SS).

Research Result Discussion

Table 6.1 Results of Statistical Data Description

Descriptive Statistics					
	N	Minimum	Maximum	Mean	StdDeviation
Pressure	461	10	40	25.59	6.668
Opportunity	461	10	39	27.03	6.870
Rationalization	461	10	39	25.72	8.082
Ability	461	10	40	22.90	8.235
Academic Dishonesty	461	10	40	24.13	7.599
Artificial Intelligence	461	10	40	30.13	5.109
Valid N (listwise)	461				

(Source: Primary data processed by researchers, 2023)

Based on table 6.1, the descriptive statistics for this research can be seen as follows; There were 461 sample respondents in this study, the variables pressure, opportunity, rationalization, ability, academic dishonesty, and artificial intelligence as a whole have an average value greater than the standard deviation value, so the average value can be used to explain all data or no data deviation.

Table 6. 2 Demographic Characteristics of Respondents

Have you ever committed academic fraud?		
Yes	345	74,8%
No	116	25,2%
Total	461	100%
Intensity of academic dishonesty		
Never	118	25,6%
1-2 times a month	267	57,9%
2-4 times a month	63	13,7%
>5 times a month	13	2,8%
Total	461	100%
Artificial Intelligence that has ever been used (Respondents can choose more than 1)		
ChatGPT	338	73,3%
BingChat	63	13,7%
Bard AI	45	9,8%
Humata AI	28	6,1%
Perplexity AI	124	26,9%
AI lainnya	157	34,1%
Total		100%

(Source: Primary data processed by researchers, 2023)

Based on table 6.2 above, 345 respondents stated that they had committed academic fraud during lectures and 116 respondents stated that they had never committed academic fraud during lectures. The intensity of respondents' academic cheating behavior was classified into 4 categories, namely 118 respondents said they never did, 267 respondents said they committed academic fraud 1-2 times within one month, 63 respondents stated they committed academic fraud 2-4 times within one month, and 13 respondents stated that they committed academic fraud more than 5 times within one month.

AI is data-based artificial intelligence that can have positive or negative benefits for education. Based on table 6.2 above, students have accessed several AIs dominated by ChatGPT with 338

respondents who said they had used it, Perplexity AI with 124 respondents who said they had used it, BingChat with 63 respondents who said they had used it, Bard AI with 45 respondents. who stated that they had used it, Humata AI with 28 respondents who stated that they had used it, and other AIs that were not mentioned in the study, 157 respondents who stated that they had used it. Based on the characteristics of these respondents, AI is quite familiar among students.

Multiple Regression Analysis

Table 6. 3 Multiple Regression Analysis

Model	t	Significant
X1P	3.216	.001
X2O	4.702	.000
X3R	6.652	.000
X4A	8.298	.000

(Source: Primary data processed by researchers, 2023)

1. The Influence of Pressure on Academic Dishonesty Behavior

The results of the hypothesis tests that have been carried out conclude that there is a significant positive influence of pressure on academic cheating behavior. This can be seen from the results of the t test which produces a tcount of $3.216 > 1.96518$ (t_{table}) and a significance value of $0.001 < 0.05$. Therefore, it can be concluded that pressure has a positive and significant influence on the tendency to commit academic dishonesty. The results in this study are in line with research conducted by Albrecht, (2012), Becker et al., (2006), Munirah and Nurkhin, (2018), Warni and Margunani, (2022), Al Serhan et al., (2022) which states that pressure has a significant and positive relationship to academic dishonesty. Based on research results, students commit academic dishonesty due to financial pressure, pressure because they do not understand the material, environmental pressure to cheat and pressure to always get good grades.

H_1 is accepted: There is an influence of pressure on students' academic dishonesty behavior.

2. The Influence of Opportunity on Academic Dishonesty Behavior

The results of the hypothesis test carried out show that there is a significant positive influence of opportunity on academic cheating behavior. This can be proven from the results of the t test which shows tcount $4.702 > 1.96518$ (t_{table}) and a significance value of $0.000 < 0.05$. Therefore, it can be concluded that opportunity has a significant positive influence on the tendency to commit academic fraud. The results in this study are in line with research conducted by Albrecht, (2012), Becker et al., (2006), Munirah and Nurkhin, (2018), Warni and Margunani, (2022), Al Serhan et al., (2022) which states that opportunity has a significant and positive relationship to academic dishonesty. Based on research results, students commit academic dishonesty because there is an opportunity for educators not to supervise closely and opportunities for cheating on exams or doing assignments.

H_2 is accepted: There is an influence of opportunity on students' academic dishonesty behavior.

3. The Influence of Rationalization on Academic Dishonesty Behavior

The results of the hypothesis test that have been carried out show that there is a significant positive influence of rationalization on academic cheating behavior. This can be proven from the results of the t test which shows tcount $6.652 > 1.96518$ (t_{table}) and a significance value of $0.000 < 0.05$. Thus, it can be concluded that rationalization has a significant positive influence on academic cheating behavior. The results in this study are in line with research conducted by Albrecht, (2012), Becker et al., (2006), Munirah and Nurkhin, (2018), Warni and Margunani, (2022), Al Serhan et al., (2022) which states that

rationalization has a significant and positive relationship with academic dishonesty. Based on research results, students commit academic dishonesty because they rationalize that all their actions are correct with the reason of getting good grades, seeing other people also cheating, as a form of solidarity, not being interested in the material, assuming there are no victims.

H_3 is accepted: There is an influence of rationalization on students' academic dishonesty behavior.

4. The Influence of Ability on Academic Dishonesty Behavior

The results of the hypothesis test that have been carried out show that there is a significant positive influence of ability on academic cheating behavior. This can be proven from the results of the t test which shows tcount 8.298 > 1.96518 (ttable) and a significance value of 0.000 < 0.05. Thus, it can be concluded that ability has a significant positive influence on academic cheating behavior. The results in this study are in line with research conducted by Albrecht, (2012), Becker et al., (2006), Munirah and Nurkhin, (2018), Vilakristiyanti, (2019), Al Serhan et al., (2022) which states ability has a significant and positive relationship to academic dishonesty. Based on research results, students commit academic dishonesty because they have the ability to see opportunities to cheat because they are used to it and have the ability to influence other people to cheat.

H_4 is accepted: There is an influence of ability on students' academic dishonesty behavior.

5. Simultaneous Influence of Pressure, Opportunity, Rationalization and Ability on Academic Dishonesty Behavior

Table 6.4 F test results

F Count	Significant
589.313	.000

(Source: Primary data processed by researchers, 2023)

The results of hypothesis testing show that there is a simultaneous influence of pressure, opportunity, rationalization and ability on academic cheating behavior. Proven by the results of the F test which produces an F_{count} value of 589.313 and a significant value of 0.000. F_{count} > 2.39 (Ft_{table}) and the significant value < 0.05, it can be concluded that there is a simultaneous influence of pressure, opportunity, rationalization and ability on academic cheating behavior.

H_5 is accepted: There is a simultaneous influence of pressure, opportunity, rationalization and ability on students' academic dishonesty behavior.

Moderated Regression Analysis

Table 6.5 Moderated Regression Analysis

Model	t	Significant
X1P	2.937	.003
X2O	-1.941	.053
X3R	.763	.446
X4A	-1.784	.075

(Source: Primary data processed by researchers, 2023)

Based on table 6.5, the moderation regression equation is as follows:

1)　　The results of the t test for the interaction of pressure with AI produced t_{count} 2.937 > 1.96518 (t_{table}) and the significance value of the pressure interaction variable with AI was 0.003 (< 0.1). Which means, H6a is accepted by AI that it can moderate the influence of the pressure variable (X1) on academic cheating behavior (Y) positively and significantly. It can be concluded that when students

experience a lot of pressure, students will look for all ways to get maximum results in exams or assignments, one of which is using AI technology.

2) The results of the t test for the interaction of opportunity with AI produced t_{count} -1.941 < 1.96518 (t_{table}) and the significance value of the interaction variable opportunity and AI was 0.053 (< 0.1). Which means, H6b is accepted by AI that it can moderate the influence of the opportunity variable (X2) on academic cheating behavior (Y) negatively and significantly. It can be concluded that when students have the opportunity to commit academic dishonesty, not all of them take advantage of this opportunity, but some students choose to take advantage of this opportunity to use AI as additional knowledge before taking exams or assignments.

3) The results of the t test for the interaction of rationalization with *AI* produced t_{count} 0.763 < 1.96518 (t_{table}) and the significance value of the interaction variable rationalization and *AI* was 0.446 (> 0.1). Which means, H6c is rejected. *AI* cannot moderate the influence of the rationalization variable (X3) on academic cheating behavior (Y) positively and not significantly. It can be concluded that students do not rationalize using *AI* as a tool for academic dishonesty.

4) The results of the t test for the interaction of ability with *AI* produced t_{count} -1,784 < 1.96518 (t_{table}) and the significance value of the interaction variable between ability and *AI* was 0.075 (< 0.1). Which means, H6d is accepted by *AI* that it can moderate the influence of the ability variable (X4) on academic cheating behavior (Y) negatively and significantly. It can be concluded that not all students have the ability to use *AI* as a tool for academic dishonesty, but some students use *AI* as a learning assistant and additional knowledge.

R Square Test Result

Table 6.6 R Square Test Result

R Square (Multiple Regression Analysis)	R Square (Moderated Regression Analysis)
.838	.845

(Source: Primary data processed by researchers, 2023)

According to table 6.6, the R square value is 0.838, or 83.8%. Shows that pressure, opportunity, rationalization, and ability influence 83.8% of academic cheating behavior. Variables other than outside this research influence 16.2%. However, after adding the AI moderating variable, the R square value was 0.845 or 84.5%. Shows that after the influence of AI moderating variables can increase academic cheating behavior. Variables other than outside this research influence 15.5%.

Conclusion

Based on the results of the research analysis and discussion, it can be concluded that the more pressure students experience, the more students commit academic dishonesty, the more opportunities there are for students to cheat, the more students commit academic dishonesty, the more students have rationalizations to justify their actions. , the more students who commit academic dishonesty, the more students who have the ability to cheat, the more students who commit academic dishonesty, then AI as a moderating variable through interaction with the variables of pressure, opportunity, rationalization and ability cannot overall moderate its influence on academic dishonesty behavior. Based on the description above, it can be linked to the relationship between AI interaction variables, when students are under pressure, AI can be relied on as a tool to help them search for knowledge or rely on it to commit academic

dishonesty, when students have the opportunity but choose to use AI as a learning assistant and search for basic knowledge, it means reducing dishonest behavior. academically, when students rationalize the use of AI partly for academic dishonesty and partly choose not to use AI for academic dishonesty, the greater the ability that students have the more they will not use AI for academic dishonesty behavior. This research also proves that AI has positive and negative impacts, the positive impact of AI is being a personal tutor, learning assistant in the classroom, as an additional tool for basic knowledge for teachers and students. Then, the negative impact is that it is used for academic cheating behavior in doing assignments or exams.

Based on the results of the analysis, discussion and conclusions previously explained, the author provides suggestions to be used as input in research as follows;

1)   The hope for students is that they can change their thinking patterns so that they not only have good grades as a benchmark but also pay attention to the process in a good way by obeying all the rules that apply in higher education and using AI as a learning assistant, not for academic dishonesty.

2)   For lecturers and universities, the hope is that they can form student characters who uphold academic honesty and integrity by conducting outreach about academic integrity and the applicable rules. Lecturers or universities are expected to be more assertive in taking action against all forms of academic fraud that occur on campus so that there is a deterrent effect on students so that they do not repeat their actions again. Lecturers or universities can change the exam and assignment system which has minimal opportunities for cheating, for example increasing the number of essay questions or assignments that emphasize critical thinking and generating new ideas from students (project based), so that they cannot be searched on the internet or AI. Lecturers can be more updated on current developments in information technology, especially artificial intelligence, because there are many gaps in information technology to help commit academic dishonesty.

3)   Future researchers are expected to be able to improve the research findings by testing the influence of pressure, opportunity, rationalization and ability variables on academic cheating behavior on a wider range of research subjects, because this research is limited to academic cheating behavior among students from one of the universities in Indonesia and enriching research findings by adding theories and data collection methods, for example using interviews or observations so that data representation is more valid and in-depth.
It is hoped that future researchers can increase research and knowledge about the development of AI in the world of education, because there is still a lack of literacy about AI.

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